Claim

WHAT IS CLAIMED IS:

1   1. A multimode filter in an optical storage device for filtering an error signal

2   and extracting a frequency signal, said multimode filter comprising:

3   a CLV mode filter for filtering said error signal and extracting a narrow

4   bandwidth signal;

5   a CAV mode filter for filtering said error signal and extracting a wide bandwidth

6   signal; and

7   a switch for selection of the filter between CLV and CAV mode filter.

1   2.The multimode filter as claimed in claim 1, wherein said CAV mode filter

2   comprising:

3   a high pass filter for filtering said error signal and generating an intermediate

4   signal ; and

5   a low pass filter that connects with said high pass filter for receiving and filtering

6   said intermediate signal from the high pass filter.

1   3. The multimode filter as claimed in claim 2, wherein said high pass filter has a

2   cutoff frequency of multiple times of 22.05KHz.

1   4. The multimode filter as claimed in claim 2, wherein said low pass filter has a

2   cutoff frequency of multiple times of 55KHz.

1   5. The multimode filter as claimed in claim 1 , wherein said frequency signal has

2   a center frequency of multiple times of 22.05KHz.

1   6. The multimode filter as claimed in claim 1 , wherein said error signal is a

2   tracking error signal.

1   7. The multimode filter as claimed in claim 1, wherein said optical storage device

2   is selected from the group consisting of CD-R, CD-RW, DVD-R, DVD-RW,

3   DVD+RW, DVD-RAM.

1   8. An optical storage device having a multimode filter for filtering an error signal

2   and extracting a frequency signal, said multimode filter comprising:

3   a CLV mode filter for filtering said error signal and extracting a narrow

4   bandwidth signal;

5   a CAV mode filter for filtering said error signal and extracting a wide bandwidth

6   signal; and

7   a switch for selection of the filter between CLV and CAV mode filter.

1   9. The multimode filter as claimed in claim 8, wherein said CAV mode filter

2   comprising:

3   a high pass filter for filtering said error signal and generating an intermediate

4   signal ; and

5   a low pass filter that connects with said high pass filter for receiving and filtering

6   said intermediate signal from the high pass filter.

1   10. The multimode filter as claimed in claim 9, wherein said high pass filter has a

2   cutoff frequency of multiple times of 22.05KHz.

1   11. The multimode filter as claimed in claim 9, wherein said low pass filter has a

2   cutoff frequency of multiple times of 55KHz.

1   12. The multimode filter as claimed in claim 8 , wherein said frequency signal has

2   a center frequency of multiple times of 22.05KHz.

1   13. The multimode filter as claimed in claim 8 , wherein said error signal is a

2   tracking error signal.

1   14. The multimode filter as claimed in claim 8, wherein said optical storage

2   device is selected from the group consisting of CD-R, CD-RW, DVD-R, DVD-RW,

3   DVD+RW, DVD-RAM.

1   15. A multimode filtering method for filtering an error signal of an optical storage

2   device, said multimode filtering method comprising:

3   inputting an error signal to a multimode filter;

4   setting the frequency domain of said multimode filter in accordance with the

5   recording mode of said optical storage device; and

6   filtering said error signal and extracting a frequency signal.

1   16. The multimode filtering method as claimed in claim 15, wherein said

2   multimode filter comprises a CLV and CAV mode filter.

1   17. The multimode filtering method as claimed in claim 16 , wherein said CLV

2   mode filter has a center frequency of multiple times of 22.05KHz, and the CAV

3   mode filter has cutoff frequencies of multiple times of 22.05KHz and 55KHz.

1   18. The multimode filtering method as claimed in claim 15, wherein said

2   frequency signal has a center frequency of multiple times of 22.05KHz.

1   19. The multimode filter as claimed in claim 15 , wherein said error signal is a

2   tracking error signal.

1   20. The multimode filter as claimed in claim 15, wherein said optical storage

2   device is selected from the group consisting of CD-R, CD-RW, DVD-R, DVD-RW,

3   DVD+RW, DVD-RAM.